EMERGING TECHNOLOGIES
MICROMOBILITY (SHARED BICYCLES, E-BIKES, E-SCOOTERS)

DEPLOYMENT FACTS:

- In the US, bike share programs have existed at scale since 2008. Shared e-scooters launched in the US in late 2017 and quickly grew to nearly half of total shared micromobility trips.¹ (See Figure 1)

- In 2018, 85,000 e-scooters were deployed nationwide, vs. 57,000 station-based bikes.¹

- In the US, e-scooters accounted for 38.5M trips, compared with 36.5M station-based bike share trips and 9M dockless bike share trips.¹

- By 2019, a dozen e-scooter companies operated in Paris with a combined fleet of 20,000 scooters.²

TRIPS:

- Nationally, e-scooter use is highest from midday to early evening whereas station-based bike share peaks during rush hour.¹ (See Figure 2)

- In Santa Monica, the average e-scooter trip time is 14 minutes and average trip length is 1.3 miles.⁵

- The top 5 reasons in Santa Monica for using shared e-scooters/bikes were: work-related (29%), recreation/fun (26%), eating out (14%), to/from home (11%), and shopping (8%).⁵

- Half of Portland e-scooter riders have used an e-scooter to access bus, light-rail or street car.⁶

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¹ Source: Based on Shared Micromobility in the U.S. NACTO, 2019
² Source: Based on Shared Micromobility in the U.S. NACTO, 2019
³ Fig. 1: Breakdown of Micromobility Trips (2010-2018)
⁴ Fig. 2: US Micromobility Trips by Hour, 2018
⁵ Source: Based on Shared Micromobility in the U.S. NACTO, 2019
⁶ Source: Based on Shared Micromobility in the U.S. NACTO, 2019
MODE SHIFT:

- In Portland, e-scooters are used for trips that otherwise would be completed by walking (37%), driving (19%), or taxi/TNC (15%).

- E-scooter riders report lower usage of taxi/TNC, driving cars, and car shares. (Figure 3)

- Nearly 6 in 10 Paris Lime riders report using e-scooters to reduce their reliance on personal motorized vehicles (cars, taxis, rideshares, motorcycles, mopeds).

TRAVEL POTENTIAL:

- E-scooters/E-bikes broaden the appeal of micromobility:
  - 45% of Portland e-scooter users never ride a personal bicycle, 78% never use BIKETOWN.
  - Over 2/3 of Seattle residents would be more likely to use a bike share program with electric assist bicycles.

- About half of all trips in the US are under 3 miles, which could be completed with micromobility if it were easily available and the infrastructure supported safe travel. (See Figure 4)
Rider Demographics:

- E-Scooter riders in Santa Monica, the first US e-scooter market, skew young, male and affluent compared with users of Breeze, Santa Monica’s bike share.3 (See Figure 5)
- E-Scooter riders in Portland:6 (See Figure 6)
  - The majority (37%) are ages 30-39.
  - More than 60% are male.
  - Over a third (35%) make more than $75,000.
  - 40% have a college degree.
- Shared micromobility gender gap:4
  - 75% of station-based bike share trips are made by men.
  - 12% of women vs. 21% of men have used station-based bike share services in the US.
  - 3.2% of US women have used e-scooters compared with 4.4% of men.

Fig. 5: Santa Monica Ridership Demographics, 2018

Fig. 6: Portland Ridership Demographics, 2018
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E-SCOOTER ENFORCEMENT ISSUES:

- The majority of citations issued to e-scooter companies were for no permit/license to operate and parking/loading issues.\(^5\) (See Figure 7)
- The most common e-scooter parking issues were not providing sufficient clearance in public right of way (25%) and not being parked upright (17%).\(^5\)
- The majority of citations issued to e-scooter riders were for riding without a helmet (61%), followed by riding on sidewalks (13%).\(^5\)

E-SCOOTER INJURIES:

- Austin Public Health & The CDC find that e-scooter use results in 20 injuries per 100,000 trips.\(^\text{10}\)
- 1/3 of injuries were sustained by riders on their first e-scooter ride.\(^\text{10}\)
- 48% of injuries were to the head.\(^\text{10}\)
- 50% believed surface conditions (pot holes, crack in street) contributed to their injuries.\(^\text{10}\)
- More than 1/3 reported that excessive speed contributed to their injury.\(^\text{10}\)

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**Fig. 7: Santa Monica Scooter Code Violations**

<table>
<thead>
<tr>
<th>Type of Code Violation</th>
<th>Number of Violations</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Permit/License</td>
<td>428</td>
</tr>
<tr>
<td>In Patv/Parks/Loading</td>
<td>151</td>
</tr>
<tr>
<td>Improperly Parked</td>
<td>147</td>
</tr>
<tr>
<td>Too close to meters</td>
<td>69</td>
</tr>
<tr>
<td>Event/Emergency Removal</td>
<td>32</td>
</tr>
<tr>
<td>ID Number not Visible</td>
<td>26</td>
</tr>
<tr>
<td>ADA Violation</td>
<td>20</td>
</tr>
<tr>
<td>Damaged Vehicle</td>
<td>20</td>
</tr>
<tr>
<td>Deployment Issue</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Based on Shared Mobility Pilot Program Summary Report. Santa Monica, 2019

**Fig. 8: Number of Rides Before Injury (2018)**

<table>
<thead>
<tr>
<th>Number of Rides</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 rides (1st time)</td>
<td>35%</td>
</tr>
<tr>
<td>1-9 rides</td>
<td>30%</td>
</tr>
<tr>
<td>10-29 rides</td>
<td>20%</td>
</tr>
<tr>
<td>+30 rides</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: Based on Dockless Electric Scooter-Related Injuries Study. Austin Public Health, 2018
SOURCES:

Graphic design by Urbanism Next, data sourced from:

3. City of Santa Monica Shared Mobility Device Pilot Program User Survey Results. (January 2019). Retrieved from: https://www.smgov.net/uploadedFiles/Departments/PCD/Transportation/SharedMobility_UserSurveySummary_20190509_FINAL.PDF